

**FIG. 2**

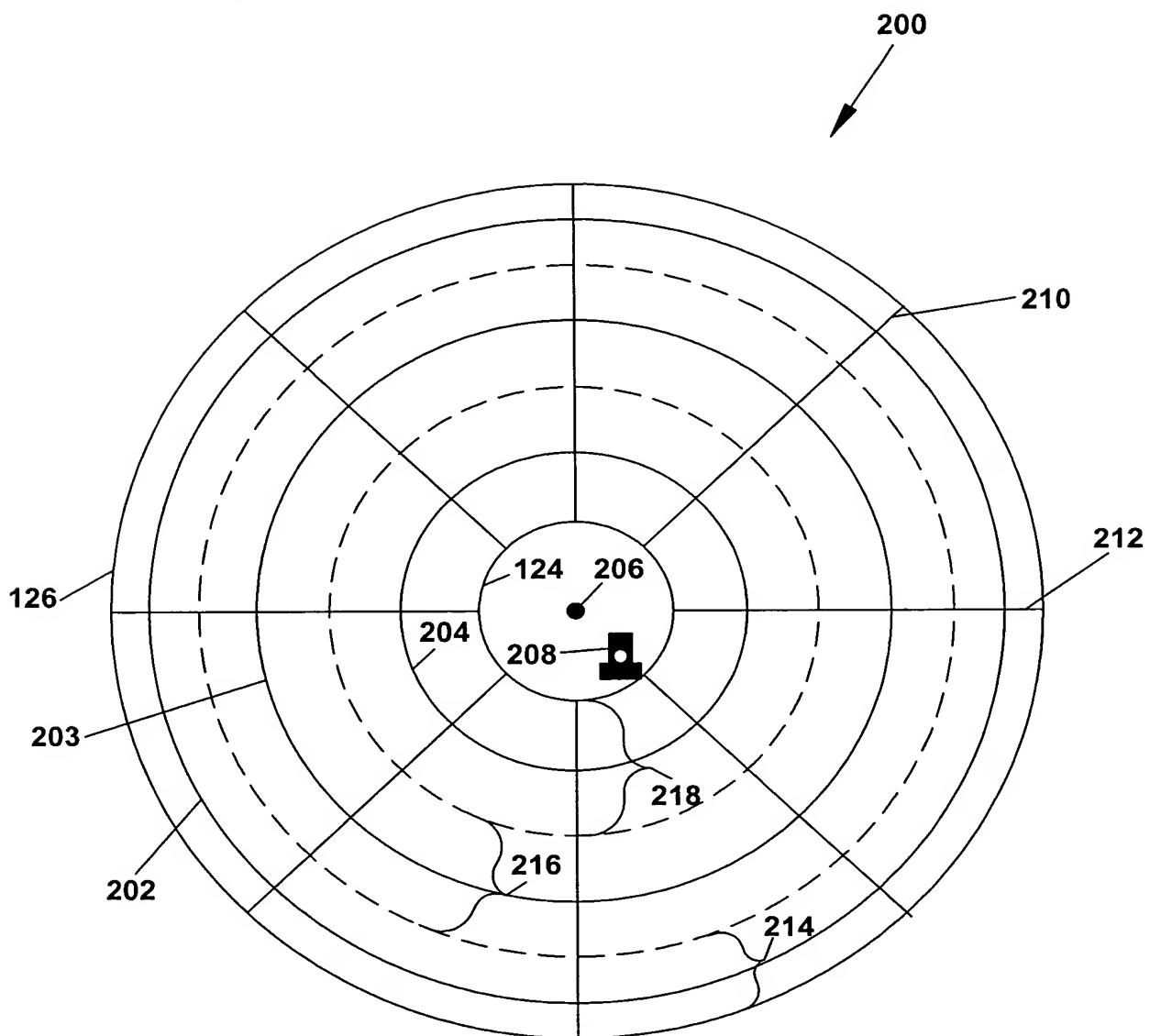
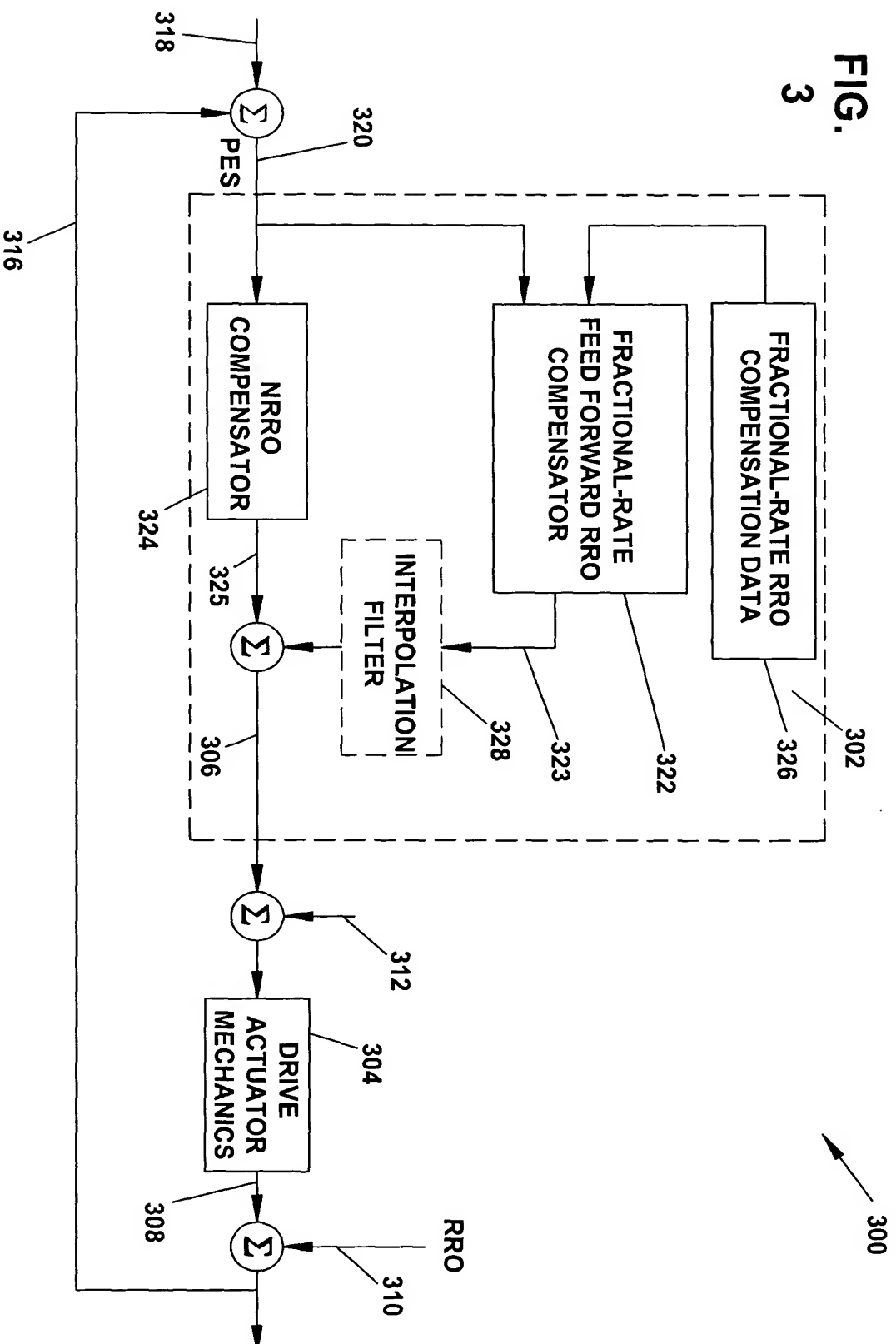


FIG.

3



**FIG. 4**

**4 Harmonics - Full Rate**

----- Sector j

$$i_{f_1}(j)$$

$$i_{f_2}(j)$$

$$i_{f_3}(j)$$

$$i_{f_4}(j)$$

$$i_{ff}(j) = i_{f_1}(j) + i_{f_2}(j) + i_{f_3}(j) + i_{f_4}(j)$$

----- Sector j + 1

$$i_{f_1}(j+1)$$

$$i_{f_2}(j+1)$$

$$i_{f_3}(j+1)$$

$$i_{f_4}(j+1)$$

$$i_{ff}(j+1) = i_{f_1}(j+1) + i_{f_2}(j+1) \\ + i_{f_3}(j+1) + i_{f_4}(j+1)$$

----- Sector j + 2

$$i_{f_1}(j+2)$$

$$i_{f_2}(j+2)$$

$$i_{f_3}(j+2)$$

$$i_{f_4}(j+2)$$

$$i_{ff}(j+2) = i_{f_1}(j+2) + i_{f_2}(j+2) \\ + i_{f_3}(j+2) + i_{f_4}(j+2)$$

----- Sector j + 3

$$i_{f_1}(j+3)$$

$$i_{f_2}(j+3)$$

$$i_{f_3}(j+3)$$

$$i_{f_4}(j+3)$$

$$i_{ff}(j+3) = i_{f_1}(j+3) + i_{f_2}(j+3) \\ + i_{f_3}(j+3) + i_{f_4}(j+3)$$

**4 Harmonics - 1/4 rate**

----- Sector j

$$i_{f_1}(m)$$

$$i_{ff}(j) = i_{f_1}(m) + i_{f_2}(m-1) \\ + i_{f_3}(m-1) + i_{f_4}(m-1)$$

----- Sector j + 1

$$i_{f_2}(m)$$

$$i_{ff}(j+1) = i_{f_1}(m) + i_{f_2}(m) \\ + i_{f_3}(m-1) + i_{f_4}(m-1)$$

----- Sector j + 2

$$i_{f_3}(m)$$

$$i_{ff}(j+2) = i_{f_1}(m) + i_{f_2}(m) \\ + i_{f_3}(m) + i_{f_4}(m-1)$$

----- Sector j + 3

$$i_{f_4}(m)$$

$$i_{ff}(j+3) = i_{f_1}(m) + i_{f_2}(m) \\ + i_{f_3}(m) + i_{f_4}(m)$$

## FIG. 5

### 4 Harmonics - Full Rate

----- Sector j  
Terms computed and accumulated:

$$\begin{aligned} &\sin(f_1 \cdot \theta_j)pes(j), \cos(f_1 \cdot \theta_j)pes(j) \\ &\sin(f_2 \cdot \theta_j)pes(j), \cos(f_2 \cdot \theta_j)pes(j) \\ &\sin(f_3 \cdot \theta_j)pes(j), \cos(f_3 \cdot \theta_j)pes(j) \\ &\sin(f_4 \cdot \theta_j)pes(j), \cos(f_4 \cdot \theta_j)pes(j) \end{aligned}$$

----- Sector j + 1  
Terms computed and accumulated:

The above at k=j+1

----- Sector j + 2  
Terms computed and accumulated:

The above at k=j+2

----- Sector j + 3  
Terms computed and accumulated:

The above at k=j+3

### 4 Harmonics - 1/4 rate

----- Sector j  
Terms computed and accumulated:

$$\sin(f_1 \cdot \theta_m)pes(j), \cos(f_1 \cdot \theta_m)pes(j)$$

----- Sector j + 1  
Terms computed and accumulated:

$$\sin(f_2 \cdot \theta_m)pes(j+1), \cos(f_2 \cdot \theta_m)pes(j+1)$$

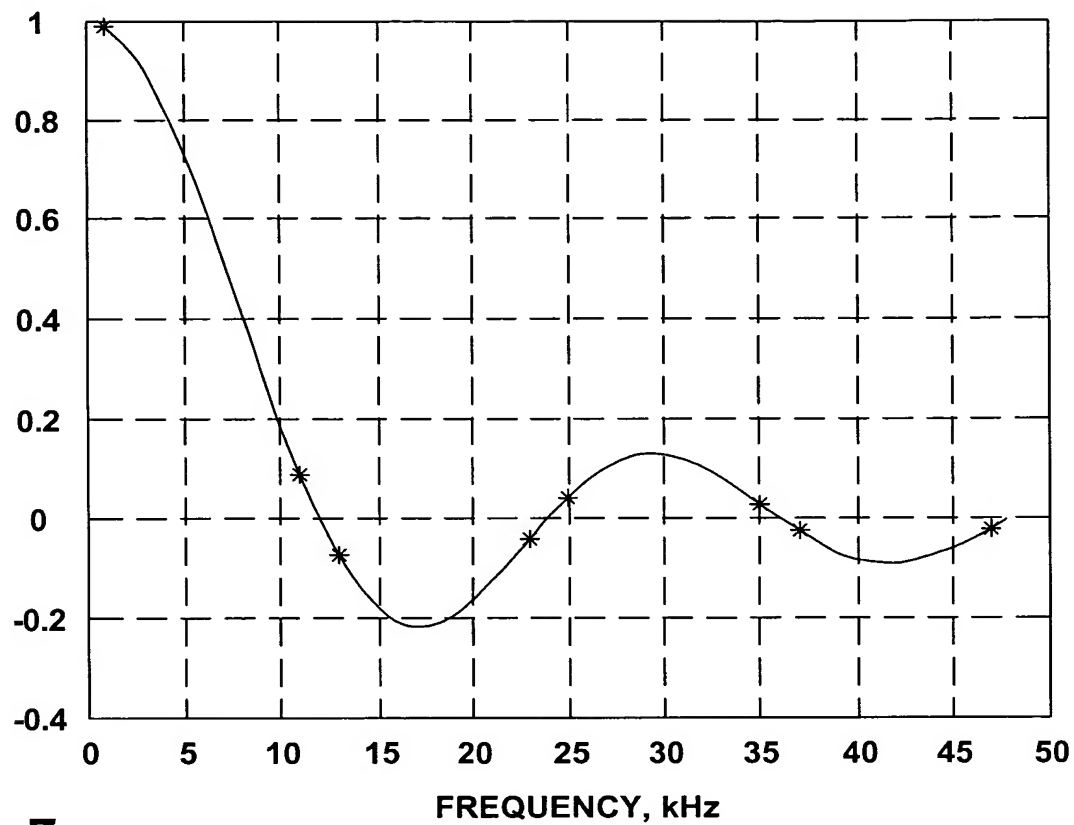
----- Sector j + 2  
Terms computed and accumulated:

$$\sin(f_3 \cdot \theta_m)pes(j+2), \cos(f_3 \cdot \theta_m)pes(j+2)$$

----- Sector j + 3  
Terms computed and accumulated:

$$\sin(f_4 \cdot \theta_m)pes(j+3), \cos(f_4 \cdot \theta_m)pes(j+3)$$

**FIG. 6**



**FIG. 7**

